

Observations on the preimaginal ecology of *Rhynchina canariensis* Pinker, 1962 (Erebidae: Hypeninae) and *Abrostola canariensis* Hampson, 1913 (Noctuidae: Plusiinae) on the Canary island of La Gomera

WOLFGANG WAGNER

Anton-Hohl-Str. 21a, D-87758 Kronburg, www.pyrgus.de; wolfgang@pyrgus.de

Received 18 June 2012; reviews returned 4 September 2012; accepted 24 September 2012.

Subject Editor: Alberto Zilli.

Abstract. In this work some information (including photos) is provided on larvae and preimaginal ecology of two Canarian endemics *Abrostola canariensis* Hampson, 1913 and *Rhynchina canariensis* Pinker, 1962 from La Gomera. Larvae of *R. canariensis* were observed in Vallehermoso on *Lotus emeroides* R. P. Murray (Fabaceae). They inhabit stony, semidry slopes with *Juniperus turbinata* Guss. (Cupressaceae) where there are stands of *L. emeroides* on more or less open ground. The brownish, elongate larvae resemble those of *Zekelita antiqualis* (Hübner, 1809). Eggs and larvae of *Abrostola canariensis* were found on *Parietaria judaica* L. (Urticaceae) on not too dry or partially shaded rocky slopes and especially stone walls made of natural stone in cultivated or abandoned areas. *Parietaria* L. spp. should be the main host plants of this species and *Urtica* L. spp. are likely to be used only occasionally.

Introduction

The Canary Islands are famous for their high rate of endemic plants and insects. While the species composition is relatively well known, the preimaginal stages and bionomics of many species are still in need of detailed study.

Rhynchina canariensis Pinker, 1962 (Erebidae: Hypeninae) and *Abrostola canariensis* Hampson, 1913 (Noctuidae: Plusiinae) are both endemic to the Canary Islands. While the former is known from Tenerife eastwards, the latter inhabits all islands of the archipelago (Baez 1998; Hacker & Schmitz 1996). The larva and relevant life habits were fully unknown in the case of *R. canariensis* and poorly known in that of *A. canariensis*. The latter is said to use *Urtica urens* L. as host plant (e.g., Hacker & Schmitz 1996), but no reliable field observations have been published so far.

During a trip to La Gomera in December 6–19, 2011 the author had the chance to find eggs and larvae of *A. canariensis* and larvae of *R. canariensis*, the latter being new to La Gomera.

Material and methods

Eighteen larvae of *Rhynchina canariensis* were found on December 8 in Vallehermoso (La Gomera, Canary Islands, Spain) at about 400 m above sea level by careful investigation of *Lotus emeroides* R. P. Murray stands. As to *Abrostola canariensis*, five larvae and two eggs were found in several localities (Vallehermoso, Agulo) on La Gomera between December 8–15, 2011 by searching *Parietaria judaica* L. stands. The larvae were successfully reared in small glass containers with perforated caps to avoid



Fig. 1. Imago of *Abrostola canariensis* (La Gomera, Valle Gran Rey, December 2011).



Fig. 2. Larval habitat of *Rhynchina canariensis*: slopes with partially open ground in Vallehermoso (La Gomera, December 2011).

excessive moisture at room temperatures (18–20°C), and taxonomic identifications were confirmed after they attained the imaginal stage.

Additionally, an ex-ovo rearing of *A. canariensis* after oviposition of a female (Fig. 1) from Valle Gran Rey (found at an illuminated building) has been carried out under the same conditions as mentioned above.

Results

Bionomics. Larvae of *Rhynchina canariensis* inhabit dry to semidry, stony or rocky slopes with partially exposed soil (Fig. 2) where procumbent shoots of *Lotus emeroides* grow on mostly open ground in the “succulent” belt between the sea level and approximately 600–700 m above sea level. On La Gomera the species is obviously restricted to the *Juniperus turbinata* Guss. (Cupressaceae) dominated slopes between Vallehermoso and Hermigua where the observed host plant *Lotus emeroides* grows. This plant species is endemic to La Gomera. Larvae of *R. canariensis* had been found already in December 2009 in the same locality, though nearly at the sea level, but rearing had failed so that they could not have been identified. The larvae hide by day, stretching themselves along the lower parts of the procumbent shoots (Fig. 3) of the host plants and in later instars they feed preferentially at night. In captivity the moths emerged after 14 to 18 days of pupal phase.

Larvae of *Abrostola canariensis* were observed on *Parietaria judaica* which grows on walls bordering roads and fields (Fig. 4) or on rocks. The young, whitish green larvae rest on the lower side of the leaves while in the last instar they tend to hide at the base of the plant during daytime. The eggs (Fig. 5) were found singly on the lower side



Fig. 3. Larval habitat of *Rhynchina canariensis*: *Lotus emerooides* on partially open ground at a slope in Vallehermoso (La Gomera, December 2011).



Fig. 4. Larval habitat of *Abrostola canariensis* at Agulo (La Gomera, December 2011): rocks and walls with *Parietaria judaica*.

of the leaves. The occupied plants were mostly growing isolatedly in rock and stone niches on at least partially sunny ground. Pupation took place in captivity between the end of December and January; all pupae ($n = 12$) entered dormancy and moths did not emerge until late April and May 2012.

Searches for larvae of *A. canariensis* on *Urtica urens* in Fuerteventura (Pico de la Zarza and above Cofete) in February 2011 did not result in any specimens except for those of *Vanessa vulcanica* (Godart, 1819), which is rare on this eastern island. Another examination of *Urtica morifolia* Poir. on La Gomera was also not successful and resulted only in larvae of *Vanessa vulcanica* and *Mniotype schumacheri* (Rebel, 1917).

Habitus. The larvae (Figs 6–11) of *Rhynchina canariensis* are brownish, the first two pairs of prolegs are reduced. They bear a variably broad (viz. not parallel-sided) darker dorsal field which is bordered by a slightly white and then dark area. The ventral side is light coloured, almost whitish. The head shows a darker finely reticulated pattern and especially two large dark spots. The pupa (Fig. 12) is light yellowish to reddish brown.

Young larvae of *Abrostola canariensis* are whitish green (Figs 13–14) and thus well matching the lower sides of *Parietaria* leaves. In the last instar their colour ranges from greenish yellow to light brown (Figs 15–16) with several small whitish marks and speckles. The larva is similar to that of *A. triplasia* (Linnaeus, 1758), but, for example, the dorsal markings on the fourth and fifth segments are different: dark triangles point towards the head in *A. triplasia* whereas there are oppositely oriented subtriangular markings in *A. canariensis*. Additionally, the number of white spots and their size and arrangement is different (e.g., two larger spots at the sides of the triangle of the fourth segment in *A. triplasia*).

Typical traits of *Abrostola* Ochseneimer, 1816 are well expressed: prolegs on abdominal segments 3–6, transverse, semicircular flecks on the dorsal zone of abdominal segments 1, 2 and 8. The pupa (Fig. 17) is brown and does not differ significantly from those of its European congeners.



Fig. 5. Egg of *Abrostola canariensis* (La Gomera, December 2011).



Fig. 6. Young larva of *Rhynchina canariensis* (La Gomera, Vallehermoso, December 2011)



Fig. 7. Larva of *Rhynchina canariensis* in the last instar (lateral view).



Fig. 8. Larva of *Rhynchina canariensis* in the last instar (dorsal view).

Discussion

Rhynchina canariensis (Fig. 18) is a xerothermophilous species of lower and middle elevations, as shown by the localities where adults have been captured, mainly at light (e.g., Hacker & Schmitz 1998; Pinker 1962). The species is not restricted to slopes, but can also be found in drier coastal plains. On islands other than La Gomera the moth must evidently rely on other *Lotus* spp. such as *Lotus lancerottensis* Webb et Berth., *Lotus glaucus* Dryand. in Aiton, *Lotus glinoides* Delile or *Lotus campylocladus* Webb et Berth., which are locally abundant in biotopes where *R. canariensis* occurs (e.g., in the low hills and valleys around Betancuria on Fuerteventura). It is questionable but it should be examined whether *R. canariensis* is able to develop on other genera of Fabaceae as well. Last instar larvae supplied in captivity with *Onobrychis viciifolia* Scop. (Fabaceae) did not accept this plant. The larvae resemble in both external appearance and behaviour those of *Zekelita antiqualis* (Hübner, 1809) (cf. Beck 1999), which belongs to a closely related genus within the subfamily Hypeninae (Mayerl & Lödl 1997). For example, the larval head markings (Fig. 11) are very similar to each other. Interestingly, larvae of *Rhynchina* (and *Zekelita*) show some characters commonly ob-



Fig. 9. Fully grown (some days prior to pupation) last instar larva of *Rhynchina canariensis* (dorsal view).



Fig. 10. Fully grown last instar larva of *Rhynchina canariensis* (lateral view).



Fig. 11. Head of larva of *Rhynchina canariensis* in the last instar.



Fig. 12. Pupa of *Rhynchina canariensis* (ventral view, cocoon removed)



Fig. 13. Larva of *Abrostola canariensis* in penultimate instar (La Gomera, Vallehermoso, December 2011).



Fig. 14. Larva of *Abrostola canariensis* in penultimate instar, dorsal view (La Gomera, Vallehermoso, December 2011).

served within the subfamily Catocalinae, e.g., the non-parallel sided darker dorsal field, the overall shape, and their behaviour. The higher classification of Noctuoidea has been in great flux recently and the closer affinity of some subfamilies formerly assigned



Fig. 15. Last instar larva of *Abrostola canariensis* (lateral view).



Fig. 16. Last instar Larva of *Abrostola canariensis* (dorsal view).



Fig. 17. Pupa of *Abrostola canariensis* (cocoon removed).



Fig. 18. Adult female of *Rhynchina canariensis*, ex larva, Vallehermoso, December 2011.

to Noctuidae in the old sense such as Hypeninae and Catocalinae is reflected by their placement in the newly established family Erebiidae (cf. Lafontaine & Fibiger 2006; Zahiri et al. 2011).

Abrostola canariensis is also an inhabitant of semidry, rocky slopes of the “succulent” belt and cultivated areas, and secondarily of stone walls along roads or between fields. As *Parietaria judaica* is relatively widespread on the islands, it should be the most important host plant for this species. In the literature there are hints and especially presumptions of *Urtica* being the host plant of *A. canariensis*. However, my own examination of *Urtica urens* on Fuerteventura did not yield any larvae, but as the larvae did accept *Urtica dioica* L. in captivity, it is likely that *Urtica urens* is a host plant in nature, too. *Urtica morifolia*, as an endemic member of the genus *Urtica* L., which grows especially in the so called “Laurisilva”, is probably not suited because of the cool microclimate prevailing in the humid areas where such wood formations usually occur. Probably the moth also uses other *Parietaria* spp. such as the endemic *Parietaria filamentosa* Webb & Berth. Rearing results indicate that this species is able to survive the dry summer period in pupal dormancy in the same way as its Central

European allies do during the cold winters. Sometimes there are hints about the occurrence of *Abrostola canariensis* on the Ilhas Selvagens which are located between the Canary Islands and Madeira and belong to Portugal (e.g., the Fauna Europaea project), but the species is not mentioned in the cited paper (Aguiar & Karsholt 2006).

References

- Aguiar, A. M. F. & O. Karsholt 2006. Systematic catalogue of the entomofauna from the Madeira archipelago and Selvagens Islands. Lepidoptera. – Boletim do Museu Municipal do Funchal, Suppl. **9**: 5–139.
- Baez, M. 1998. Mariposas de Canarias. – Editorial Rueda, Alcorcon (Madrid). 216 pp.
- Beck, H. 1999. Die Larven der europäischen Noctuidae – Revision der Systematik der Noctuidae. – Herpiboliana **5**: Vol. 1–4. 2160 pp.
- Hacker, H. & W. Schmitz 1996. Fauna und Biogeographie der Noctuidae des makaronesischen Archipels (Lepidoptera). – Esperiana **4**: 167–221.
- Lafontaine, J. D. & M. Fibiger 2006. Revised higher classification of the Noctuidae (Lepidoptera). – Canadian Entomologist **138**: 610–635.
- Mayerl, B. & M. Lödl 1997. Checkliste aller Arten der Gattungen *Rhynchina* Guenée, 1854 und *Zekelita* Walker, 1863 der Paläarktischen und Indoaustralischen Region (Lepidoptera: Noctuidae: Hypeninae). – Annalen des Naturhistorischen Museums in Wien **99B**: 377–386.
- Pinker, R. 1962. Interessante und neue Funde und Erkenntnisse für die Lepidopterenfauna der Kanaren. I. Fortsetzung und Schluß. – Zeitschrift der Wiener Entomologischen Gesellschaft **47** (11): 169–179.
- Zahiri, R., I. J. Kitching, J. D. Lafontaine, M. Mutanen, L. Kaila, J. D. Holloway & N. Wahlberg 2011. A new molecular phylogeny offers hope for a stable family-level classification of the Noctuoidea (Lepidoptera). – Zoologica Scripta **40**: 158–173.